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(54) SHIFTERS FOR EDGERS AND THE LIKE

(54) LEVIERS DE DEPLACEMENT POUR SCIES ET ANALOGUES

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ABSTRACT:

CLAIMS: [Show all claims](#)

*** Note: Data on abstracts and claims is shown in the official language in which it was submitted.

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My invention relates to improvements in shifters for edgers and the like.

The objects of the invention are to provide a shifter for use in moving one or more saws across a bed whereby each saw may be moved transversely across the saw bed in order to place the saw at any selected distance from the fence or lumber line of the bed; to provide means for controlling the shifter which may be placed in any position relative to the edger where the operator may observe the cant or flitch to be cut in order to know where to set his saws to cut said cant to the best advantage, and to leave the operator clear of the path of the lumber passing through the edger.

A further advantage is to enable the operator to instantly set his saw at any desired unit of length of the transverse saw travel. For instance if the saw controlled has a transverse setting movement of say nine inches and a button switch is actuated calling for a spacing of six inches from the lumber fence the saw will be caused to move irrespective of its immediately past position, relative to the fence, towards the position six inches from the fence and as soon as that position is reached the saw shifter will be firmly held by an air pressure thrust in opposite directions until it is again required to be moved.

A further object is to provide a shifter which can be utilized in multiple on a single machine, so that any number of saws can be individually controlled from adjacently disposed switch panels and assuming the edger to have three saws arranged on a single arbor, the first saw can be moved to any desired position from the fence

within its range, the second saw moved to a desired position remote from the first saw and the third saw moved to any desired position remote from the second saw.

Still further objects are to provide that in a multiple saw edger the shifter of one saw may be connected to the shifter of one or two other saws so that in the event of it being desired to change the saw settings following a cutting of a cant where the first saw cuts a three inch wide strip, the second saw cuts a three inch wide strip and the third saw cuts a four inch wide strip, if desired, the second saw could be set to cut a four inch wide strip and the third saw to cut a four inch wide strip as before. The setting of the shifter to alter the cutting position of the second saw would cause the shifter of the third saw to be moved without any alteration and to follow the second saw, so that making a single cut dimensional change in one of the saws would leave the other two saws to maintain their previously set spacings, regardless of whether the dimensional change is increased or lowered.

Other objects will appear as the specification proceeds.

Referring to the accompanying drawings:

Figure 1 is a sectional plan of an edger taken on the line 1-1 of Figure 2 and showing three shifter arms connected with three endwise slidable saws.

Figure 2 is a longitudinal section of the edger taken on the line 2-2 of Figure 1.

Figure 3 is a sectional plan of an articulated shifter cylinder taken on the line 3-3 of Figure 4.

Figure 4 is a section taken transversely of the shifter cylinder as on the line 4-4 of Figure 1.

Figure 5 is a diagrammatic view showing the fluid pressure hook-up of each shifter cylinder.

Figure 6 is a wiring diagram showing the valve control for said shifter cylinder to move a saw to any desired cutting position upon the saw arbor.

Figure 7 is an enlarged plan view showing the mounting of three shifter cylinders in which the said cylinders are so interconnected that spacing one saw from another to increase the width of a piece of lumber to be cut will cause an adjacent saw to move in the same direction so that the piece cut by the adjacent saw will be of the same dimension as its corresponding immediately cut piece and vice versa.

Figure 8 is a section taken on the line 8-8 of Figure 7.

In the drawings like characters of reference indicate corresponding parts in each figure.

The numeral indicates an edger having a driven saw arbor 2 which is provided with diametrically opposed longitudinal keyways 3, see Figures 1 and 2, to slidably receive a plurality of saw collars 5 and their saws 6.

The edger 1 is provided at one side with any suitable feed works such as live or bed rolls 8 for conveying cants or flitches past the saws, see Figure 2, and at one side of the edger at and above the bed rolls 8 a fence or lumber side 9 is provided against which the lumber to be cut, which for brevity will be hereinafter referred to as a cant, is adapted to be held in contact on its passage

through the edge. Appropriate press roll means 10 are provided to keep the cant firmly held upon the bed rolls and in proper alignment with the fence 9. A platform 12 is carried by the edger which is disposed below the level of the saw arbor and extends transversely thereof.

In the edger three saws 6 only are shown, though there is obviously no limit to the number that may be used and shifted longitudinally on the arbor 2. For individual identification the saws 6 will be represented by letters as saw 6A, 6B and 6C and in like manner associated parts of the shifter mechanism will be similarly identified.

The saws 6 are individually engaged by guides 14 which are secured to shifter rods 15 and said rods are securely anchored by Tee pieces 17 to the final drive piston rods 18A, 18B and 18C of shifters 19A, 19B and 19C. The shifters 19A, 19B and 19C are identical in form and each consist of the following parts as shown in Figure 3. Tandem cylinder blocks 23 and 24 having squared heads 25, 26 and 27 and 28, 29 and 30. The heads are all slidably supported upon the platform 12. Two cylinders 34 and 35 are defined between the heads 25 and 26, and 26 and 27 and two more cylinders 36 and 37 are defined between the heads 28 and 29 and 29 and 30. All of the cylinders 34, 35, 36 and 37 are double-acting and are provided with inlet-outlets at both ends which are adapted to be fitted with flexible pipes respectively indicated by the numerals 40 and 41 for cylinder 34, 42 and 43 for cylinder 35, 44 and 45 for cylinder 36, and 46 and 47 for cylinder 37. The cylinder 34

is fitted with a piston 50 having a piston rod 51 which is anchored to a post 52 mounted upon the platform 12. The cylinder 35 is fitted with a piston 53 connected to one end of a piston rod 54, which piston rod extends / through from the tandem cylinder block 23 into the cylinder 36 of the second cylinder block 24 where it is fitted with a piston 55. The cylinder 37 is fitted with a piston 57 which is fitted to a final thrust piston rod 18 which extends outwardly through the cylinder head 30 and through a slide bearing 60 mounted on the right side of the frame of the edger 1. The Tee piece 17A of the shifter rod 15A is secured to the piston rod 18 of the shifter 19A and corresponding Tee pieces of the shifter rods 15B and 15C are similarly coupled to the piston rods 18 of the shifters 19B and 19C.

For purposes of description it may be assumed that the piston travel relative to each of the cylinders is one inch for cylinder 34, two inches for cylinder 35, five inches for cylinder 36 and one inch for cylinder 37, consequently if air was admitted to the appropriate side of each of the pistons and was exhausted from the opposite side of each piston, the tandem cylinder block 23 would be moved to the right away from the post 52 one inch and the tandem cylinder block 24 eight inches. The movement of the final thrust piston 57 in the cylinder 37 of an additional inch would make a total movement of the final drive piston rod 18 from the post 52 nine inches. The aggregate movement of the final thrust piston of the shifter 19A would therefore move the saw 6A to the right of Figure 1, a distance of nine inches from the fence or lumber side 9. If having moved the saw 6A to the limit

of its travel along the arbor 2, or nine inches, it is desired to reduce it say to six inches, air might be exhausted from the cylinders 34 and 35 and admitted to the previously uncharged side of their pistons 50 and 53. The final thrust piston rod may obviously be moved by selectively introducing air under pressure to one or more of the cylinders to give an exact saw travel along its arbor in one inch increments.

It will be shown that the operating air or other fluid pressure will be applied to appropriate sides of the several pistons during operation of the edger, so that each of said pistons will be maintained at the full end of its inner or outer stroke as the case may be and the total saw endwise movement must be exactly so many inches.

The manipulation of each separate shifter is shown diagrammatically in Figure 5, where the pairs of inlet-outlet flexible pipes are controlled by coupled solenoid control valves 62D, 62E, 62F and 62G, each of which is connected to an air supply pipe 63. Each of the solenoid control valves is such as to cause air under pressure to flow to one inlet-outlet pipe of a cylinder and to exhaust air from the other inlet-outlet pipe of any of the cylinders 34, 35, 36 and 37, as for instance the valve 62D may be operated to supply air to the pipe 41 to exert a force on the piston 50 to the left and to exhaust air from the left of the piston 50 through pipe 40 and to control the other pistons 53, 55 and 57 in a similar manner.

The control of all the pistons is by means of electric circuits as shown in Figure 6 and a series of multiple

contact normally open push button switches designated by the letter S and a number representing a unit of measurement to the right of the fence 9 that a saw may be moved to on the arbor 2, as for instance S.0. or S.Zero, is the switch which when pressed to close will cause the saw say 6A to be moved to zero position, or in close proximity to the fence. S.1 is the switch which when pressed will cause the saw to be moved one inch to the right of the fence, the remaining switches S. 2, 3, 4, 5, 6, 7, 8 and 9 work in a similar manner to progressively space the saw at one inch intervals to the right. Other contacts from the N.O. switches S.0. et seq. have circuit leads 70A, 70B, 70C, 70D, 70E, 70F, 70G and 70H which connect to the valves 62D, 62E, 62F and 62G progressively to close circuits actuating the several solenoids of said valves in the following manner. The closing of any circuit lead 70A with the valve 62D will admit air to flow under pressure into pipe 40 to move the piston 50 relatively to the right and to allow air to exhaust from said cylinder through the pipe 41. The closing of any circuit lead 70B will cause air to flow under pressure through pipe 41 to cylinder 34 and allow air from said cylinder to exhaust through the pipe 40. The closing of any lead 70C will cause air to flow through pipe 42 into cylinder 35 and allow air from said cylinder to exhaust through pipe 43. The closing of any lead 70D will cause air to flow through pipe 43 into cylinder 35 and allow air from said cylinder to exhaust through pipe 42. The closing of any lead 70E will cause air under pressure to flow into cylinder 36 through pipe 44 and allow air to exhaust through pipe 45.

The closing of any lead 70F will cause air to flow into cylinder 36 through pipe 45 and exhaust through pipe 44. The closing of any lead 70G will cause air to flow into cylinder 37 through pipe 46 and allow air to exhaust through pipe 47. The closing of any lead 70H will cause air to flow into cylinder 37 through pipe 47 and allow air to exhaust through pipe 46. It will therefore be seen that in actuating the shifter 19A controlling saw 6A the manual pressing of any of the switch buttons S.O. to S.9 inclusive will cause electrical circuits to be closed whereby the shifter will be elongated or contracted as required to move said saw 6A to any desired spacing from the fence 9 of the edger.

Obviously there will be a series of press button switches for each saw to be moved on the arbor 2 and the shifters will preferably be generally actuated in their consecutive order and the circuit diagram and switch arrangement here shown will be satisfactory for most operations, but may be improved if desired, as for example: Assuming that saw 6A is set to cut a four inch board, saw 6B is set to cut a four inch board and saw 6C is set to cut a three inch board, and that it becomes necessary to make the first-named board three inches instead of four. By setting the shifter of the saw 6A to cut a three inch board, the setting of saw 6B, unless changed downwardly, will result in a three inch board being cut by saw 6A, a five inch board by saw 6B and a three inch board being cut by the saw 6C. If under these circumstances the setting of saw 6B is reduced to the proper dimension, then the board cut by saw 6C will be one inch over width, which of course

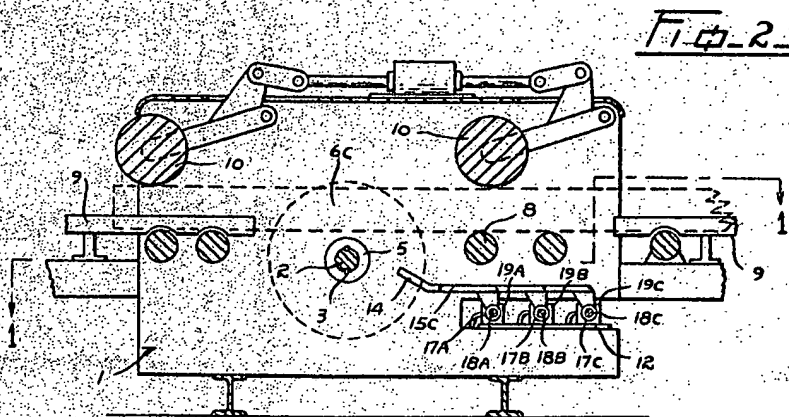
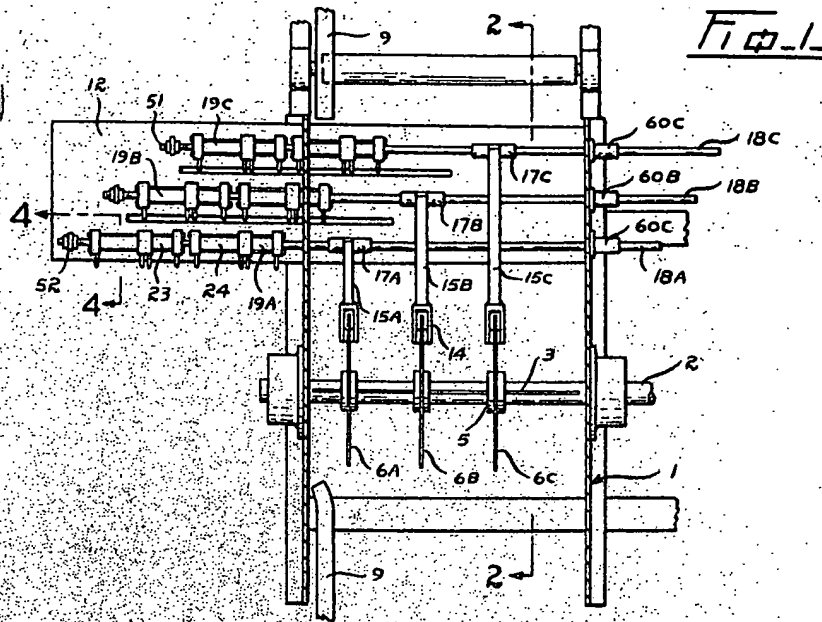
can be corrected by adjusting saw 6C down one inch also. If it is desired to avoid this intersetting of the shifters of one or two saws, when altering the spacing of one saw only, it may be done by utilizing the additional elements to the edger, as shown in Figures 7 and 8. In these Figures the shifter 19A is anchored to the platform 12 as previously shown and disposed parallel to said shifter but somewhat spaced therefrom are parallel slides 80 and 81. Slidably mounted in the slides 80 and 81 are the shifters 19B and 19C respectively, which are anchored by their piston rods 51 to their supporting slides as at 82. The slides 80 and 81 are coupled to the Tee pieces 17A and 17B respectively by a lug 84.

Since it would not be possible to retract the saws 6B and 6C back to the fence 9 or to move the saw 6C say nine inches beyond the saw 6A, it would be convenient to dispense with one or more of the push button switches such as S.8 and S.9.

When the shifters 19A and 19B or their Tee pieces are cross connected respectively to the slides 80 and 81 of the shifters 19B and 19C, it will be seen that if the saws are at a set spacing and the spacing between the fence 9 and the saw 6A is to be increased say from three to four inches by pressing push buttons S.4 the final thrust piston of cylinder 37 will move the saw 6A to the right one inch and through the lug 84 of Tee piece 17A will move the slide 81 one inch to the right also, leaving the interspace between saws 6A and 6B as before. Through the lug 84 of Tee piece 17B the slide 81 of shifter 19C will also be moved one inch to the right, consequently

in changing one dimension relative to the saw 6A the position of the remaining saws 6B and 6C are also changed without the necessity of touching any other switch on the panel. Obviously the space between say saw 6B and 6C may be reduced by pressing the appropriate switch to contract the shifter 19C and draw its saw to the left without the saw 6B being moved relative to its shifter.

While the shifters have been described as consisting of two double-acting cylinders it may be necessary on some edgers to provide more than two cylinders, so that a greater number of saw settings are available. The cylinders would be inter-connected in the same manner and would be combined in such a way as to allow the saws to be moved in any required increments even in fractions of an inch. In such cases where multiple saw settings are provided it may be desirable to substitute rotary selector switches for the push button switches controlling the solenoid valves.



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Fig. 3-

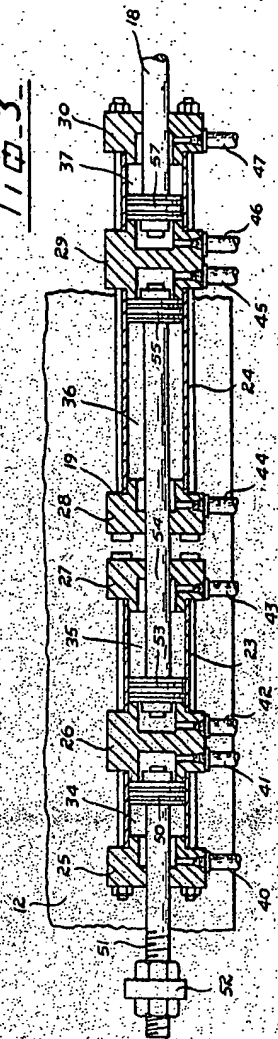


Fig. 4-

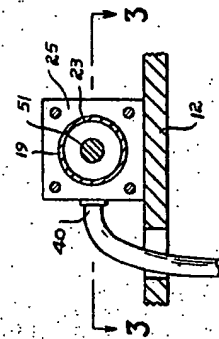
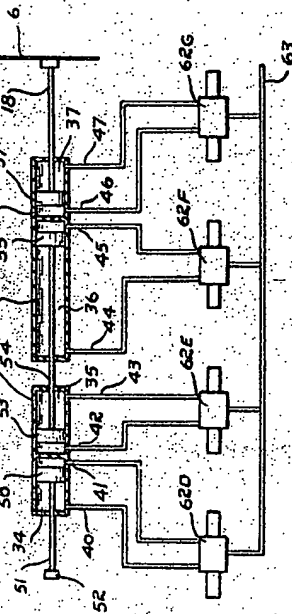


Fig. 5-

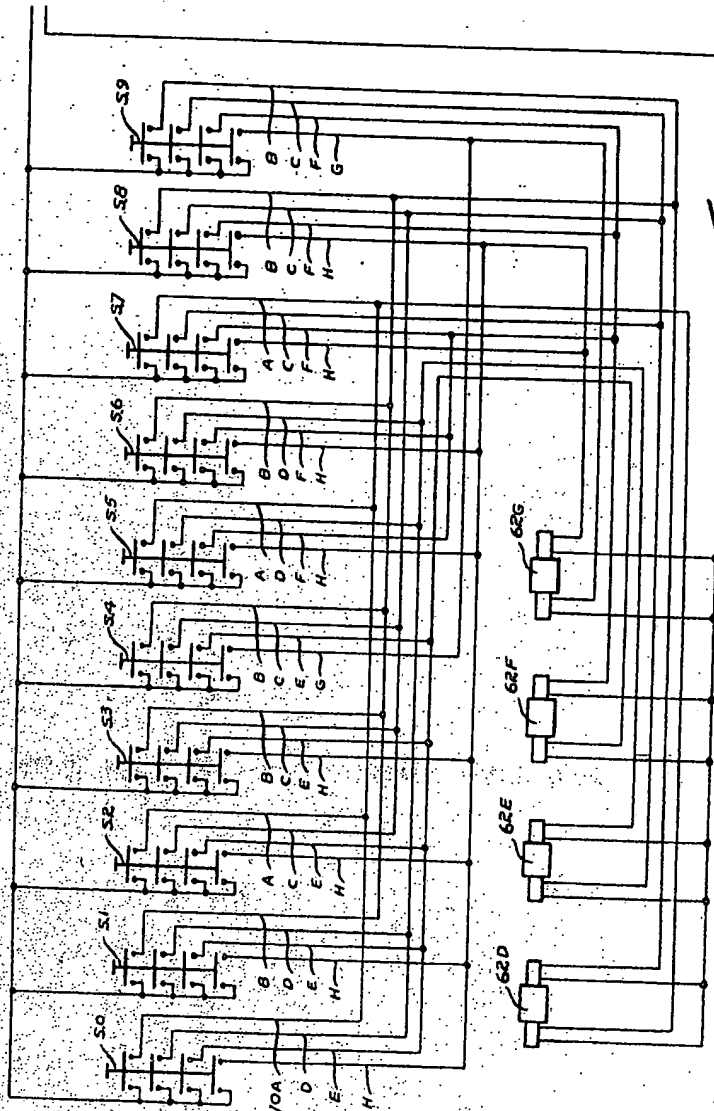


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FIG. 6



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Fig. 7

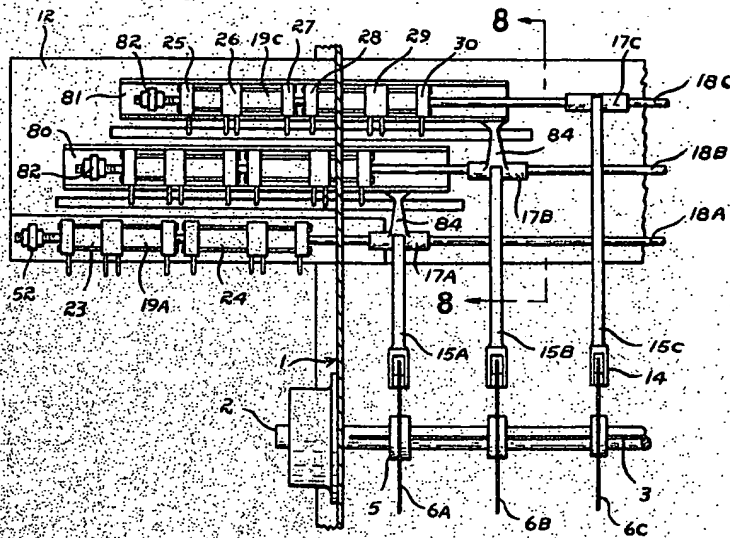
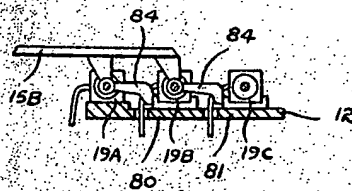


Fig. 8



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